



1600

RAW SEQUENCE LISTING
PATENT APPLICATION: US/09/555,296B

DATE: 07/24/2002
TIME: 11:33:07

RECEIVED

AUG 01 2002

Input Set : A:\2369-1-002 Sequence Listing.TXT
Output Set: N:\CRF3\07242002\I555296B.raw

TECH CENTER 1600/2900

4 <110> APPLICANT: Nuttall, Patricia
5 Paesen, Guido Christiaan
7 <120> TITLE OF INVENTION: Histamine and Serotonin Binding
8 Molecules
10 <130> FILE REFERENCE: 2369-1-002
12 <140> CURRENT APPLICATION NUMBER: US 09/555,296B
13 <141> CURRENT FILING DATE: 2002-09-13
15 <150> PRIOR APPLICATION NUMBER: PCT/GB98/03530
16 <151> PRIOR FILING DATE: 1998-11-26
18 <150> PRIOR APPLICATION NUMBER: GB 9725046.8
19 <151> PRIOR FILING DATE: 1997-11-26
21 <150> PRIOR APPLICATION NUMBER: GB 9813917.3
22 <151> PRIOR FILING DATE: 1998-06-26
24 <160> NUMBER OF SEQ ID NOS: 31
26 <170> SOFTWARE: FastSEQ for Windows Version 4.0
28 <210> SEQ ID NO: 1
29 <211> LENGTH: 190
30 <212> TYPE: PRT
31 <213> ORGANISM: Rhipicephalus appendiculatus
33 <400> SEQUENCE: 1
34 Met Lys Leu Leu Leu Ser Leu Ala Phe Val Leu Ala Leu Ser Gln Val
35 1 5 10 15
36 Lys Ala Asp Lys Pro Val Trp Ala Asp Glu Ala Ala Asn Gly Glu His
37 20 25 30
38 Gln Asp Ala Trp Lys His Leu Gln Lys Leu Val Glu Glu Asn Tyr Asp
39 35 40 45
40 Leu Ile Lys Lys Ala Thr Tyr Lys Asn Asp Pro Val Trp Gly Asn Asp Phe
41 50 55 60
42 Thr Cys Val Gly Thr Ala Ala Gln Asn Leu Asn Glu Asp Glu Lys Asn
43 65 70 75 80
44 Val Glu Ala Trp Phe Met Phe Met Asn Asn Ala Asp Thr Val Tyr Gln
45 85 90 95
46 His Thr Phe Glu Lys Ala Thr Pro Asp Lys Met Tyr Gly Tyr Asn Lys
47 100 105 110
48 Glu Asn Ala Leu Thr Tyr Gln Thr Glu Asp Gly Gln Val Leu Thr Asp
49 115 120 125
50 Val Leu Ala Phe Ser Asp Asp Asn Cys Tyr Val Ile Tyr Ala Leu Gly
51 130 135 140
52 Pro Asp Gly Ser Gly Ala Gly Tyr Glu Leu Trp Ala Thr Asp Tyr Thr
53 145 150 155 160
54 Asp Val Pro Ala Ser Cys Leu Glu Lys Phe Asn Glu Tyr Ala Ala Gly
55 165 170 175
56 Leu Pro Val Pro Asp Val Tyr Thr Ser Asp Cys Leu Pro Glu

ENTERED

RAW SEQUENCE LISTING

DATE: 07/24/2002

PATENT APPLICATION: US/09/555,296B

TIME: 11:33:07

Input Set : A:\2369-1-002 Sequence Listing.TXT

Output Set: N:\CRF3\07242002\I555296B.raw

```

57          180          185          190
59 <210> SEQ ID NO: 2
60 <211> LENGTH: 190
61 <212> TYPE: PRT
62 <213> ORGANISM: Rhipicephalus appendiculatus
64 <400> SEQUENCE: 2
65 Met Lys Leu Leu Ile Leu Ser Leu Ala Leu Val Leu Ala Leu Ser Gln
66 1          5          10          15
67 Val Lys Gly Asn Gln Pro Asp Trp Ala Asp Glu Ala Ala Asn Gly Ala
68          20          25          30
69 His Gln Asp Ala Trp Lys Ser Leu Lys Ala Asp Val Glu Asn Val Tyr
70          35          40          45
71 Tyr Met Val Lys Ala Thr Tyr Lys Asn Asp Pro Val Trp Gly Asn Asp
72          50          55          60
73 Phe Thr Cys Val Gly Val Met Ala Asn Asp Val Asn Glu Asp Glu Lys
74 65          70          75          80
75 Ser Ile Gln Ala Glu Phe Leu Phe Met Asn Asn Ala Asp Thr Asn Met
76          85          90          95
77 Gln Phe Ala Thr Glu Lys Val Thr Ala Val Lys Met Tyr Gly Tyr Asn
78          100         105         110
79 Arg Glu Asn Ala Phe Arg Tyr Glu Thr Glu Asp Gly Gln Val Phe Thr
80          115         120         125
81 Asp Val Ile Ala Tyr Ser Asp Asp Asn Cys Asp Val Ile Tyr Val Pro
82          130         135         140
83 Gly Thr Asp Gly Asn Glu Glu Cys Tyr Glu Leu Trp Thr Thr Asp Tyr
84 145         150         155         160
85 Asp Asn Ile Pro Ala Asn Cys Leu Asn Lys Phe Asn Glu Tyr Ala Val
86          165         170         175
87 Gly Arg Glu Thr Arg Asp Val Phe Thr Ser Ala Cys Leu Glu
88          180         185         190
90 <210> SEQ ID NO: 3
91 <211> LENGTH: 200
92 <212> TYPE: PRT
93 <213> ORGANISM: Rhipicephalus appendiculatus
95 <400> SEQUENCE: 3
96 Met Lys Val Leu Leu Leu Val Leu Gly Ala Ala Leu Cys Gln Asn Ala
97 1          5          10          15
98 Asp Ala Asn Pro Thr Trp Ala Asn Glu Ala Lys Leu Gly Ser Tyr Gln
99          20          25          30
100 Asp Ala Trp Lys Ser Leu Gln Gln Asp Gln Asn Lys Arg Tyr Tyr Leu
101          35          40          45
102 Ala Gln Ala Thr Gln Thr Thr Asp Gly Val Trp Gly Glu Glu Phe Thr
103          50          55          60
104 Cys Val Ser Val Thr Ala Glu Lys Ile Gly Lys Lys Lys Leu Asn Ala
105 65          70          75          80
106 Thr Ile Leu Tyr Lys Asn Lys His Leu Thr Asp Leu Lys Glu Ser His
107          85          90          95
108 Glu Thr Ile Thr Val Trp Lys Ala Tyr Asp Tyr Thr Thr Glu Asn Gly
109          100         105         110

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/555,296B

DATE: 07/24/2002

TIME: 11:33:07

Input Set : A:\2369-1-002 Sequence Listing.TXT

Output Set: N:\CRF3\07242002\I555296B.raw

```

110 Ile Lys Tyr Glu Thr Gln Gly Thr Arg Thr Gln Thr Phe Glu Asp Val
111      115      120      125
112 Phe Val Phe Ser Asp Tyr Lys Asn Cys Asp Val Ile Phe Val Pro Lys
113      130      135      140
114 Glu Arg Gly Ser Asp Glu Gly Asp Tyr Glu Leu Trp Val Ser Glu Asp
115 145      150      155      160
116 Lys Ile Asp Lys Ile Pro Asp Cys Cys Lys Phe Thr Met Ala Tyr Phe
117      165      170      175
118 Ala Gln Gln Gln Glu Lys Thr Val Arg Asn Val Tyr Thr Asp Ser Ser
119      180      185      190
120 Cys Lys Pro Ala Pro Ala Gln Asn
121      195      200
123 <210> SEQ ID NO: 4
124 <211> LENGTH: 209
125 <212> TYPE: PRT
126 <213> ORGANISM: Rhipicephalus appendiculatus
128 <400> SEQUENCE: 4
129 Met Lys Met Gln Val Val Leu Leu Leu Thr Phe Val Ser Ala Ala Leu
130 1      5      10      15
131 Ala Thr Gln Ala Glu Thr Thr Ser Ala Lys Ala Gly Glu Asn Pro Leu
132      20      25      30
133 Trp Ala His Glu Glu Leu Leu Gly Lys Tyr Gln Asp Ala Trp Lys Ser
134      35      40      45
135 Ile Asp Gln Gly Val Ser Val Thr Tyr Val Leu Ala Lys Thr Thr Tyr
136      50      55      60
137 Glu Asn Asp Thr Gly Ser Trp Gly Ser Gln Phe Lys Cys Leu Gln Val
138 65      70      75      80
139 Gln Glu Ile Glu Arg Lys Glu Glu Asp Tyr Thr Val Thr Ser Val Phe
140      85      90      95
141 Thr Phe Arg Asn Ala Ser Ser Pro Ile Lys Tyr Tyr Asn Val Thr Glu
142      100      105      110
143 Thr Val Lys Ala Val Phe Gln Tyr Gly Tyr Lys Asn Ile Arg Asn Ala
144      115      120      125
145 Ile Glu Tyr Gln Val Gly Gly Gly Leu Asn Ile Thr Asp Thr Leu Ile
146      130      135      140
147 Phe Thr Asp Gly Glu Leu Cys Asp Val Phe Tyr Val Pro Asn Ala Asp
148 145      150      155      160
149 Gln Gly Cys Glu Leu Trp Val Lys Lys Ser His Tyr Lys His Val Pro
150      165      170      175
151 Asp Tyr Cys Thr Phe Val Phe Asn Val Phe Cys Ala Lys Asp Arg Lys
152      180      185      190
153 Thr Tyr Asp Ile Phe Asn Glu Glu Cys Val Tyr Asn Gly Glu Pro Trp
154      195      200      205
155 Leu
158 <210> SEQ ID NO: 5
159 <211> LENGTH: 207
160 <212> TYPE: PRT
161 <213> ORGANISM: Rhipicephalus appendiculatus
163 <400> SEQUENCE: 5

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/555,296B

DATE: 07/24/2002

TIME: 11:33:07

Input Set : A:\2369-1-002 Sequence Listing.TXT

Output Set: N:\CRF3\07242002\I555296B.raw

```

164 Met Phe Leu Ala Gly Phe Phe Ile Phe Gly Ala Ala Val Leu Ser Val
165 1 5 10 15
166 Leu Ala Glu Glu Thr Pro Asn Asp Arg Cys Thr Thr His Thr Pro Asn
167 20 25 30
168 Gly Trp Gln Phe Leu Lys Lys Gly Lys Arg Tyr Asp Met Lys Gln Arg
169 35 40 45
170 Thr Phe Gln Thr Pro Asn Ser Asp Asp Thr Lys Cys Leu Ser Ser Thr
171 50 55 60
172 Ile Asp Gly Lys Asn Glu Asn Asn His Thr Val Gln Ala Thr Ile Arg
173 65 70 75 80
174 Tyr Arg Asn Gly Tyr Glu Gly Lys Trp Asp Thr Ile Arg Gln Glu Tyr
175 85 90 95
176 Glu Phe Pro Asn Tyr Thr Ala Gly Asp Tyr Asn Ser Met Lys Thr Thr
177 100 105 110
178 Asp Lys Ser Pro Pro Pro Pro Ala Ser Tyr Leu Phe Gly Tyr Thr Gly
179 115 120 125
180 Ser Ser Cys Ala Val Val Tyr Val Asn Ser Ile Gly Pro Val Arg Ser
181 130 135 140
182 Asn Ser Glu Asn Pro Pro Glu Arg Leu Thr Ala Ser Gln Glu Ser Ala
183 145 150 155 160
184 Gln Arg Asp Cys Val Leu Trp Val Asp His Asp Glu Lys Ala Thr Gln
185 165 170 175
186 Glu Gln Cys Cys Glu Asp Phe Phe Lys Thr His Cys Lys Glu Thr Val
187 180 185 190
188 His Val Ile Tyr Asp Val Asn Arg Cys Lys Glu Asn Gly Ser Glu
189 195 200 205
191 <210> SEQ ID NO: 6
192 <211> LENGTH: 198
193 <212> TYPE: PRT
194 <213> ORGANISM: Boophilus microplus
196 <400> SEQUENCE: 6
197 Met Asn Ser Ala Leu Trp Val Leu Leu Gly Ser Ser Leu Trp Leu His
198 1 5 10 15
199 Thr Val Ala Phe Met Ile Pro Thr Trp Ala Asp Glu Gly Arg Phe Gly
200 20 25 30
201 Lys Tyr Gln Asn Ala Trp Lys Ala Leu Asn Gln Arg Ile Asn Thr Thr
202 35 40 45
203 His Val Leu Val Arg Ser Thr Tyr Ile Asp Asn Pro Tyr Leu Trp Gly
204 50 55 60
205 Lys Asn Phe Ser Cys Val Arg Ala Arg Thr Val Glu Val Phe Pro Ser
206 65 70 75 80
207 Ser Lys Thr Val Glu Leu Glu Phe Ser Phe Arg Asn Arg Thr Gly Ile
208 85 90 95
209 Leu Cys Met Arg Asn Gln Thr Val Arg Ala Gly Lys Asp Tyr Phe Tyr
210 100 105 110
211 His Gln Pro Asn Ala Phe Glu Phe Met Leu Arg Gly Asn Arg Ser Phe
212 115 120 125
213 Ser Asn Ala Val Met Phe Thr Asp Gly Met Thr Cys Asn Leu Leu Ser
214 130 135 140

```

RAW SEQUENCE LISTING

PATENT APPLICATION: US/09/555,296B

DATE: 07/24/2002

TIME: 11:33:07

Input Set : A:\2369-1-002 Sequence Listing.TXT

Output Set: N:\CRF3\07242002\I555296B.raw

```

215 Phe Pro Tyr Gln Arg Asn Lys Pro Gln Cys Glu Leu Trp Val Lys Asp
216 145                      150                      155                      160
217 Thr Arg Val Asp Asn Ile Pro Pro Cys Cys Ser Phe Met Phe Asp Tyr
218                      165                      170                      175
219 Leu Cys Pro Gln Pro Arg Pro Phe Ile Ile Tyr Asp Lys Ala Met Cys
220                      180                      185                      190
221 Thr Val Arg Pro Pro Arg
222                      195
224 <210> SEQ ID NO: 7
225 <211> LENGTH: 203
226 <212> TYPE: PRT
227 <213> ORGANISM: Boophilus microplus
229 <400> SEQUENCE: 7
230 Met Lys Ala Leu Leu Ile Ala Val Gly Tyr Leu Ala Ala Val Thr Ala
231 1                      5                      10                      15
232 Ala Pro Gln Ala Ser Pro Ser Ser Pro Arg Asn Glu Pro Leu Lys Asn
233                      20                      25                      30
234 Thr Thr Trp His Ser Lys Glu Leu Lys Asn Tyr Gln Asp Ala Trp Lys
235                      35                      40                      45
236 Ser Ile Asn Gln Asn Val Ser Thr Thr Tyr Tyr Phe Leu Arg Ser Thr
237                      50                      55                      60
238 Tyr Asn Asn Asp Ser Val Trp Gly Lys Asn Phe Thr Cys Leu Ser Val
239 65                      70                      75                      80
240 Thr Val Thr Ser Lys His Glu Ser Thr Phe Thr Val Glu Tyr Asn Thr
241                      85                      90                      95
242 Thr Tyr Lys Asn Gln Ser Gln Gln Trp Val Ser Met Thr Glu Asn Val
243                      100                     105                     110
244 Thr Ala Val Gln Glu Glu Gly Tyr Asp Val Lys Asn Ile Ile Gln Trp
245                      115                     120                     125
246 Thr Thr Glu Asn Asn Thr Lys Phe Asn Asp Thr Val Val Phe Thr Asp
247                      130                     135                     140
248 Gly Gln Thr Cys Asp Leu Leu Tyr Ile Pro Tyr Lys Glu Asn Gly Tyr
249 145                      150                      155                      160
250 Glu Leu Trp Val Arg Ser Asp Tyr Leu Gln Asn Thr Pro Thr Cys Cys
251                      165                      170                      175
252 Gln Phe Ile Phe Asp Leu Val Ala Leu Gly Arg Thr Thr Tyr Asn Ile
253                      180                      185                      190
254 Ser Thr Pro Asp Cys Val Thr Lys Thr Ser Arg
255                      195                      200
257 <210> SEQ ID NO: 8
258 <211> LENGTH: 203
259 <212> TYPE: PRT
260 <213> ORGANISM: Boophilus microplus
262 <400> SEQUENCE: 8
263 Met Lys Ala Leu Leu Ile Ala Val Val Tyr Leu Thr Ala Val Thr Ala
264 1                      5                      10                      15
265 Ala Asp Gln Ala Pro Pro Ser Ser Thr Arg Asn Glu Pro Leu Glu Lys
266                      20                      25                      30
267 Thr Thr Trp His Asn Gln Thr Leu Gly Arg Tyr Gln Asp Ala Trp Lys

```

RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/09/555,296B

DATE: 07/24/2002
TIME: 11:33:08

Input Set : A:\2369-1-002 Sequence Listing.TXT
Output Set: N:\CRF3\07242002\I555296B.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:20; N Pos. 963

Seq#:22; N Pos. 1125,1126,1131,1132,1133,1134,1135,1136,1139,1142,1149

Seq#:23; N Pos. 6,21

Seq#:24; N Pos. 9,12,18